ESTABLISHED 1845.

ILLUSTRATED CATALOGUE

OF THE

PORTLAND STONE WARE CO.

MANUFACTURERS OF

FIRE BRICK, TILES, TERRA COTTA VASES,

Flue Linings, Chimney Tops, Grease Traps,

Stone-Ware, Etc.

FACTORY AT
PORTLAND, ME.
Winslow & Co., Props.

BRANCH OFFICE
42 Oliver St., Boston.
Geo. C. Dunne, Manager.

Depot and Yard, Boston & Maine Railroad, Charlestown Dist., Boston.

CONNECTED BY TELEPHONE.

BLAIR & HALLETT, PRINTERS, 197 DEVONSHIRE ST., BOSTON.

INDEX.

	PAGE.
To Buyers of Sewer Pipe, Fire-Brick, etc.	1
Proper Sewerage a Necessity,	2
Advantages of Pipe Sewers over Brick Sewers,	3
New Factory,	4
Description of New Factory,	5
Price List of Drain and Sewer Pipe,	6
Drain and Sewer Pipe Shapes,	7
Water and Slop Hoppers,	7
Directions for Laying Sewer Pipe,	8
Stone-ware Acid or Meat Pots,	9
Culvert Pipe for Railroads, etc.	10–12
Capacity of Pipe,	12
Grease Traps,	13
Fire-Brick, Tiles and Shapes,	14–15
Flue and Chimney Lining,	16–17
Fire-Clay Stove Pipe,	18–20
Glazed Chimney Tops,	21
Wind Guards,	21
Terra Cotta Chimney Tops,	22
Flag-House Jack,	23
Smoke Jacks for Engine Houses,	23
Well Tubing,	24
Invert Blocks for Sewer Bottoms,	25
Channel or Split Pipe,	25
Terra Cotta Vases,	26–27
Umbrella Stands,	27
Drain and Sole Tile	28
Testimonials and Tests of Sewer Pipe,	29–33

TO BUYERS

OF

SEWER PIPE, FIRE BRICK, ETC.

1840

WE take pleasure in presenting to our friends and patrons a brief and revised catalogue of the principal articles manufactured by us. We refer you to page 5 for a short description of our new factory which was completed in April, 1887. It is located on the north end of Deering's Bridge, in the City of Portland, Me., the Portland & Rochester Railroad having a branch track in our yard for loading cars. The Grand Trunk Railroad and all the through lines are also connected, besides large dock room, where we ship by water along the Atlantic Coast.

Our new SALT-GLAZED SEWER PIPE *shows on fracture a dark red body.* It bears our brand, "Portland Salt-Glazed Pipe," and while more attractive in appearance than ever before, this Pipe will be found fully up to the high standard of excellence which we have always maintained, viz., its perfect shape, smoothness, hardness, and great strength. See testimonials and tests, pages 29 to 33.

The constant increasing demand for Portland Fire-Brick and Terra-Cotta goods enables us to say they are unsurpassed by any in the market.

We will always take pleasure in giving any information in our power to those in need of any of our goods.

We extend to you a cordial invitation to visit and examine our goods, either in Portland or Boston.

Hoping by fair dealing to have a continuation of your generous patronage, we remain,

Very respectfully,

PORTLAND STONE WARE CO.

42 Oliver Street, Boston, Mass.

GEO. C. DUNNE, Manager.

PROPER SEWERAGE A NECESSITY.

There never was a time in the history of this country when the subject of sewerage had such a hold on all classes as a sanitary measure. From a lack of drainage and the neglect of overflowing cess-pools and privy vaults in cities and towns, can be traced the origin, in many cases, of malarial fevers and epidemics which are often visited with fatal results.

Any means likely to increase the general health of the people or remove danger, should not be delayed until delicate women and little children, exposed by the carelessness of those in authority, are carried off in sweeping numbers.

The leading Engineers agree that Vitrified Glazed Pipe make the most effective system of sewerage, it being both cheaper and better than brick, because it is more durable, and being smooth and uniform inside, offers less obstruction and consequently more sewage will flow.

These pipes are made with sockets and with rings, by means of which the joints can be made water-tight, if necessary, by the use of a little hydraulic cement, thus forming a solid, immovable joint as soon as the cement sets.

Advantages of Pipe Sewers over Brick Sewers.

While an efficient system of sewerage is a necessity, it is also expensive, and this is what tempts corporations to use economy (so called), and build such sewers which apparently cost the least money. Hence brick or stone sewers are often built instead of pipe sewers. Now, while brick sewers can in some instances be built with less outlay than pipe sewers, yet true economy would suggest the use of pipe sewers in all cases, for various reasons.

1. The cost of material in building sewers and drains is small compared with the expense of the excavating, back filling and repairing the surface of the streets in which the sewers are built.

2. Good Salt-Glazed Vitrified Pipe are as durable and as imperishable as glass. This cannot be said of any other kind of sewers.

3. Experience shows that brick and stone sewers do not effectually remove filth, that owing to the crevices caused by the joints of material used in the construction of brick or stone sewers, filth accumulates, little by little, on the bottom and sides, until often they become filled with accumulations and cannot perform the work for which they are built, until they are cleaned at great cost.

It has been practically demonstrated that all these difficulties may be overcome by the use of SALT-GLAZED VITRIFIED PIPE. They have a smooth, even surface, and if the size is proportionate to the amount of work they have to perform they are self-cleaning and are impervious to the action of acids and gases. Col. George E. Waring, Jr., who has had much experience in sewerage, the author of *The Sanitary Drainage of Houses and Towns*, a valuable work, from which, by permission, we quote, and which we commend to the authorities wherever sewerage is contemplated, says:

"The more important considerations affecting the question of town sewerage are well stated in the 'general conclusions' of the English Board of Health, after a thorough investigation of the whole subject of sewerage, as follows:

* * * * * *

"That the general use of large brick sewers has resulted from ignorance or neglect; such sewers being wasteful in construction and repair, and costly through inefficient efforts to keep them free from deposits.

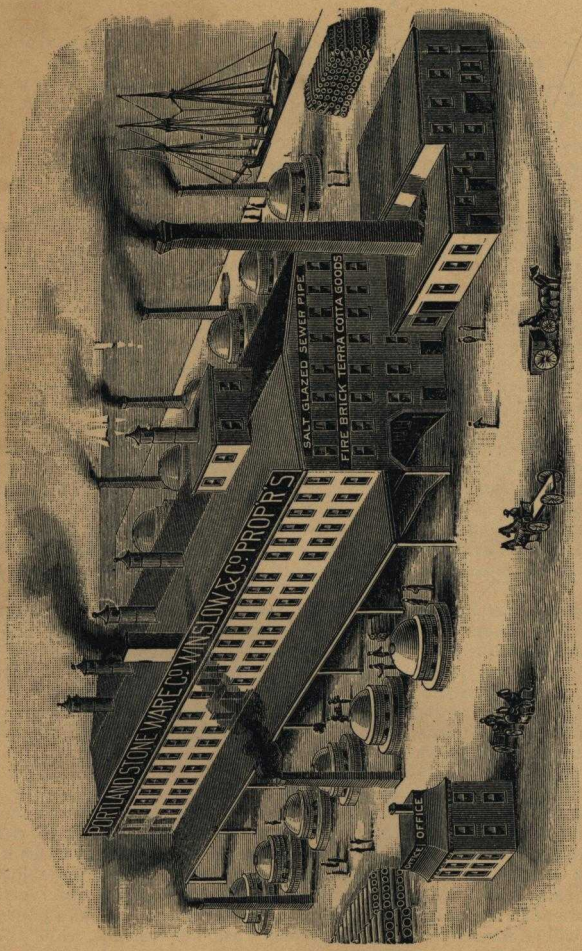
"That brick and stone house drains are false in principle, and wasteful in cleansing, construction and repair.

"That house drains and sewers properly constructed of vitrified pipe, detain and accumulate no deposits, emit no offensive smells, and require no additional supplies of water to keep them clear.

"The pipe sewer has been so long in successful use, that there is no further question of its value." * * * * *

Vitrified Pipe is largely preferable to *cement pipe*. Many towns have used cement pipe to their sorrow, and the list is rapidly lengthening of cities and towns compelled to dig up and throw cement pipe out. In many cases it has so completely decayed as to cause the streets to cave in. Cement pipes have been often condemned, and are going out of use. The most casual observer can try the experiment in a moment by taking a piece of cement pipe and pouring acid on it. It will effervesce at once and show abrasion of surface, while the same acid poured on vitrified pipe shows no action whatever.

We have in our office a piece of Portland Pipe which has been tested in sulphuric acid for over five years, and is not in the least affected.



NORTH END DEERING'S BRIDGE, PORTLAND, ME.

[*From the Industrial Journal, Maine.*]

THE PORTLAND STONE WARE COMPANY.

J. N. & E. B. WINSLOW, Proprietors.

"In November, 1886, the factory of the Portland Stone Ware Company was destroyed by fire. Without expending any of their time and energies in mourning over their loss, the enterprising proprietors at once set about rebuilding the works, almost before the embers and ashes had cooled, and have just completed the large and commodious structure shown in the subjoined engraving.

"This factory building is 175 x 66 in dimensions, three stories above the basement, while the thirteen kilns for burning the various products of the establishment are ranged around three sides. The large windows afford abundance of light on every floor, and the factory is supplied with 120 incandescent lamps, the dynamos being run by the new reciprocating engine made by J. A. Lidback, recently described in the JOURNAL. Ten thousand feet of steam-pipes are arranged in coils along the ceilings, and by the use of exhaust steam alone, every part of the building is kept at a comfortable temperature during the coldest days of winter. The 125 horse-power engine is supplied with steam from two steel boilers of 75 and 50 horse-power respectively.

"In the basement is one of Fenfield's improved brick machines, with a daily capacity of 20,000 bricks, size 9 x 4½ x 2½ inches, for which the firm have a large sale. Also, located on this floor, is the machinery for grinding and mixing the materials for sewer pipe. The mixed material is carried by an endless belt to the third story, where it falls into a large elevated trough, and is then fed to the pipe machine, which by means of steam and pressure turns the pipe out very rapidly, in sizes from 2 to 24 inches. This entire floor is used for storing the pipes while drying. They are removed to the lower floors by an endless belt elevator. In the process of burning, salt is used; and when finished, the pipe from this establishment is fully as strong and durable as any in the market.

"The second story is devoted to the making of vases, wind guards, and terra cotta ware of every description, by hand. Ornamental urns and vases are made in great variety of styles and sizes, the largest being ten feet high, known as the 'Winslow Vase,' and costing two hundred dollars. The first floor is principally used for the moulding of furnace and locomotive tiles. The firm do a very large business in supplying paper mills with the immense furnace tiles used in such establishments. The kilns outside are 20 feet in diameter by 13 feet high, down draft.

"The works, which are a credit to Portland and to the State, give employment to eighty hands, and later in the season this force will be largely increased. The firm now have double their former capacity, and their establishment is the largest and best equipped pottery in New England. The location is most excellent, fronting on Back Bay, with fine wharfage facilities."

PORTLAND SALT-GLAZED DRAIN AND SEWER PIPE.

Price List adopted by the Eastern and Western Manufacturers, Jan. 20, 1887.

Size of Bore.	Main pipe per foot.	Bends or Curves each.	Branches Y or T each.			Y's & T's double,	Reducers and Increasers	Traps each.	Weight per foot.
			1 ft. long.	2 ft. long.	3 ft. long.	2 ft. long.			
2 in.	$ .14	$ .40	$ .49	$ .63		$ .98	$ .56	$1.00	6
3 "	.16	.50	.56	.72		1.12	.64	1.50	7
4 "	.20	.65	.70	.90		1.40	.80	2.00	10
5 "	.25	.85	.88	1.13		1.76	1.00	2.50	12
6 "	.30	1.10	1.05	1.35		2.10	1.20	3.50	16
8 "	.45	1.80		2.03		3.16	1.80	5.50	22
9 "	.55	2.25		2.48		3.86	2.20	6.50	26
10 "	.65	2.75		2.93		4.56	2.60	7.50	32
12 "	.85	3.50		3.83	$4.68	5.96	3.40	10.00	46
15 "	1.25	4.75		5.63	6.88	8.76	5.00	15.00	67
18 "	1.70	6.50		7.65	9.35	11.90	6.80		85
20 "	2.25	7.50		10.13	12.38	15.76	9.00		100
24 "	3.25	11.00		14.63	17.88	22.76	13.00		136

SLANTS shall be charged fifty per cent. more than plain pipe, and measured on the long side of the slant, but no less than twelve inches.

INCREASERS shall be pipe with socket on small end, and Reducers with socket on larger end, and shall be charged the price of four feet of pipe size of larger end.

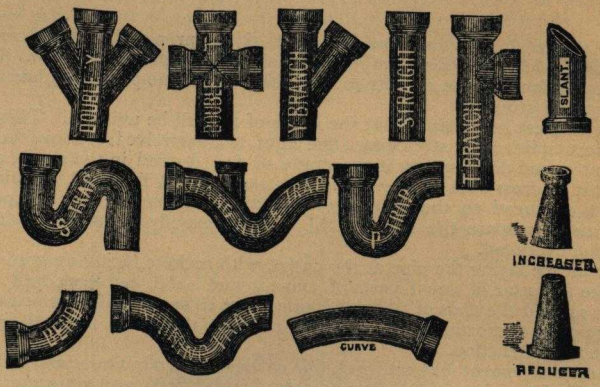
STOPPERS OR PLUGS for closing pipe one-third of one foot of pipe of the size in which it is used.

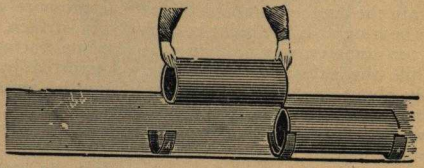
LIBERAL DISCOUNT FROM THIS LIST.

☞ **Every Shipment at the risk of the Purchaser, and no allowance for Breakage.**

PORTLAND DRAIN AND SEWER PIPE SHAPES.

Sizes 2 in. to 24 in.



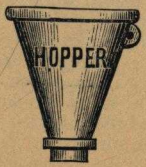


The above cut shows the Laying of Ring Pipe.

Ring Pipe Laid.

Ring.

SOCKET PIPE, from 2 in. to 24 in. inside diameter.
RING PIPE, from 12 in. to 24 in. inside diameter.



THESE STONE-WARE

SLOP HOPPERS

Are used largely for Water Closets.

Outlets to fit 3, 4, 5 and 6 in. Pipe.

Price, $3.00.

DIRECTIONS FOR LAYING SEWER PIPE.

Commence at the lower end or outlet of the proposed drain or sewer, and make the trench of uniform gradual inclination throughout its length. Cut out little depressions for the sockets so that the body of the pipe when laid will rest firmly on the ground.

It is of great importance that the grade of the fall be uniform. This is most easily accomplished by stretching a line eight, ten, or twelve feet above the bottom of the proposed ditch, giving it the grade or fall desired in the sewer, and supporting it by cross bars, to prevent it from sagging. A light rod, reaching from the line overhead to the bottom of the ditch, will enable any inexperienced workman to prepare the bed for the pipe on exactly the same grade as the guide-line overhead.

Commence laying the pipe at the outlet, with sockets facing up grade.

Make a mortar of equal parts of cement and sand, and work well into the sockets around the ends of the pipe, taking care to remove all fragments or projecting points of mortar that may work through the joints inside the pipe and become an obstruction.

When the cement has set, pack fine earth very firmly under and around the lower half of the pipes, then fill up trench (fine dirt first), and you cannot fail to have a permanent job that will require no repairs.

Pipes will sustain the greatest amount of vertical pressure when they have a firm and uniform bearing at every point in their lower surface.

The easy and too common way of laying the extreme bottom of the pipes on solid bearing, while the sides are inadequately supported by the loose earth filled in carelessly about them, causes almost the entire pressure to fall on a very narrow segment of the bottom wall of the pipe, and if it can be crushed at all, this is the very way to crush it. But stone-ware pipes possess such power to resist any crushing force that, even when laid in this careless way, the smaller sizes will stand any ordinary amount of pressure; but the safest way to lay the larger sizes, say all over nine inches in diameter, is to dig a very narrow trench in the middle of the ditch, when brought to grade, about six inches wide, and three or four inches deep.

The pipes being laid in this little trench will be sure of a firm bearing along each side, and if the loose earth is well packed and rammed about the pipes from this bearing up to the centre line of the pipes, they will stand an extraordinary amount of pressure without injury. Care should be taken in all cases to excavate a suitable depression for the sockets, so that they may not have to sustain more than their due proportion of pressure.

In answer to numerous inquiries as to how deep in the earth our Stone-Ware Pipes may be safely laid, we answer the deeper the better.

There is not, to our knowledge, a single instance on record where a Portland Salt-Glazed Pipe has ever been crushed by the superincumbent earth. The fact is, that in deep cuts the filling over the pipes is partially supported by the sides of the cut, and forms a kind of arched bridge over the pipes, so that if they could be properly removed without disturbing the earth above, when once well settled, the earth would still retain its position for awhile, which would seem to indicate that the deeper pipes are buried in the ground the safer they are, and the less they are affected by any additional weight at the surface.

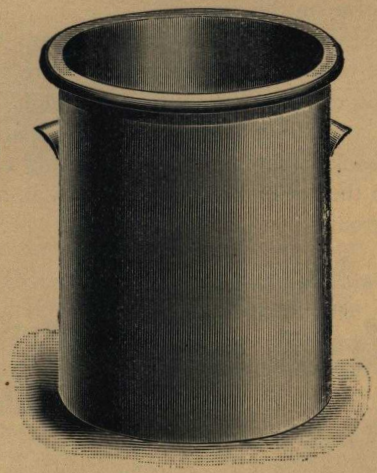
TO LAY RING PIPE.

Prepare the trench as above with depressions for the rings; break the rings in two or more pieces. Spread a layer of cement about one-half inch thick over the concave surface of one of these pieces, and lay the ends of the two pipes thereon, butting them firmly together. Cover the upper surface of the pipes at the joints with a layer of cement of sufficient thickness to allow the remaining pieces of the ring to imbed themselves; cover all around the edges of the ring with the cement, and press it firmly in the corners and cracks, and smooth it off, swabbing the cement from the inside of the pipe.

STONE-WARE ACID OR MEAT TUBS.

12 to 24 inches diameter.

18 to 36 inches deep.



Used for Chemical purposes, Preserving Meat, Fish, Vinegar, and articles liable to leak out.

Special Shapes and Sizes made to order.

COVERS FURNISHED IF DESIRED.

PORTLAND DOUBLE-THICK VITRIFIED CULVERT PIPE.

This Pipe is especially desirable for **Railroads, Culverts, Roadways and Street Crossings.** It is *thicker, stronger* and more durable than common drain pipe.

The Construction of a Pipe Culvert

is a very simple matter, but should, nevertheless, be done with care. We offer a few short suggestions, as follows:

1. After digging trench, bring it to proper grade.

2. If the ground is firm, round out the bottom of trench so the pipe may rest solid upon the ground.

3. See that the socket of the pipe rests firmly within a depression cut especially for it, thus allowing the entire under surface of the pipe to come in contact with bottom of trench.

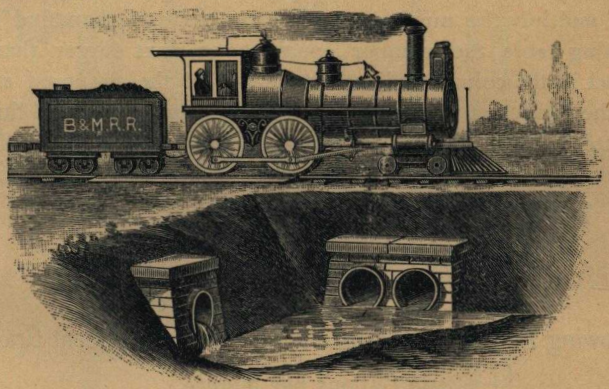
4. Commence at outlet or lower side of road and lay the pipes in position, with sockets facing up grade, taking care to see that each pipe fits into the socket of the one below it, and that all rest perfectly on the ground.

5. Pack and ram the filling firmly around the pipe, and up to the centre line, as shown in illustration above. This is of the

greatest importance, and increases the durability of the culvert many fold by making available the full strength of the pipes.

6. See that the lower end of your culvert is above the bottom of your drain, as, if the water be allowed to stand in the culvert in cold weather, it would surely freeze.

7. The ends of culvert should be protected by either stone or wood abutments to prevent the pipes being displaced by the action of the water, or by animals in search of worms or roots.



In laying the foundation of abutment, where one is used, the same of course should extend far enough down into the ground to be below the influence of frost, as otherwise the alternate heaving and settling might throw the end pipe out of position.

The size of pipe required in each particular case, depends, of course, on the amount of water to be provided for, and this in turn depends upon the area of ground from which the rainfall runs to the culvert. The area can generally be estimated with sufficient accuracy by careful observations.

Statistics show that in this section of the country the amount of rainfall during the heaviest storms, rarely amounts to one inch in depth of solid water, over any surface in one hour.

One acre of water one inch deep measures 22,633 gallons, which

FIRE BRICK, TILES AND SHAPES.

Portland Fire Brick is so well known, that very little need be said, except to state that we have the largest factory in New England, situated on a water front, with a railroad track in the yard, thus enabling us to manufacture several grades of brick from the very best fire clay, and wherever used have given entire satisfaction. We believe them equal to any in the market, and at prices as low as any.

Special Shapes and Tiles furnished to order at short notice for

ROLLING-MILLS,
GLASS-WORKS,
STEEL-WORKS,
COPPER-WORKS,
LIME-KILNS,
GAS-WORKS.

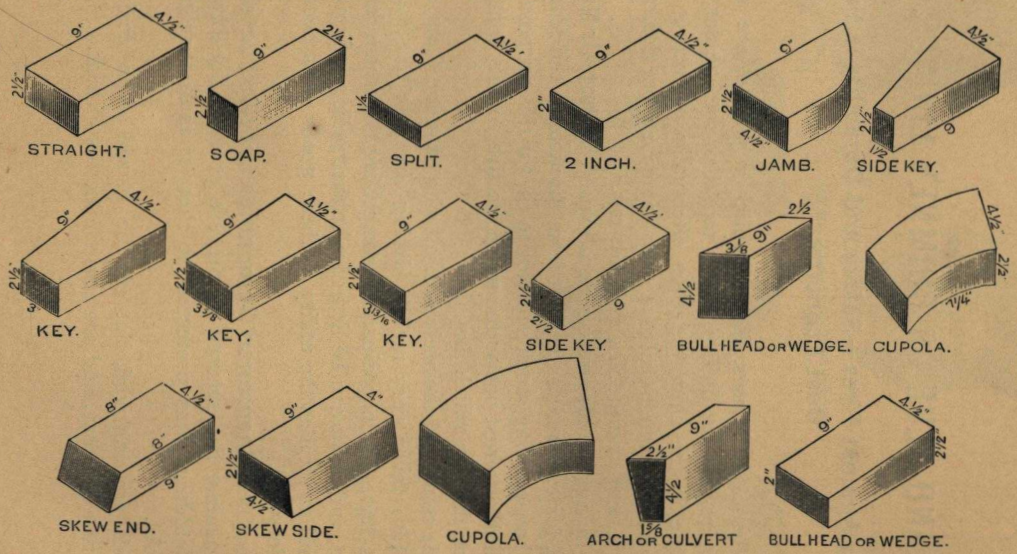
Paper-Mill and Locomotive Tiles,

McKENZIE CUPOLA LINING,
BAKER'S OVEN TILES,
GREENHOUSE TILES,

Kaolin, Fire-Clay, Fire-Sand, Moulding-Sand, by the Cargo, Ton or Barrel. Pulverized Fire-Clay, Ground Fire-Brick, "Portland" Mixture for Stove-Linings. Portland, Roman and American Cement, Lime, Etc.

☞ *SPECIAL PRICES IN CARLOAD LOTS.*

PORTLAND FIRE BRICK SHAPES KEPT IN STOCK.



84 Large Bullhead turn circle 58 in. inside dia. 15 Circle Brick turn circle 36 in. inside dia. 36 Large Key turn circle 36 in. inside dia.
84 Small " " 48 " " 39 Arch " " 26 " " 32 Small " " 28 " "
56 6 ft. Key turn circle 6 ft. inside dia. Large Circles can be turned by using a proportion of Square Brick with the Shapes.

Tiles, Blocks, etc., in large variety of sizes, constantly in stock.

SPECIAL SIZES AND SHAPES MADE TO ORDER.

PORTLAND FLUE OR CHIMNEY LININGS.

Protection Against Fires—Safety and Durability is the Best Economy.

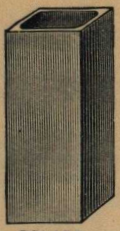
Very few first-class houses, either public or private, are now built without fire-clay flue-linings, either round or rectangular, for each smoke-flue in the chimneys, thus effectually protecting the building against fires, which so frequently originate from defective flues, where the mortar crumbles and falls out.

These flue-linings are also very generally used for **hot-air flues** instead of tin, for conducting the heat from furnaces to the several rooms in the house, being much superior to tin for this purpose, as they are not liable to rust out or communicate fire to the contiguous wood work through which they pass.

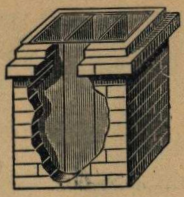
These goods commend themselves to all who examine them, and have grown into favor very rapidly during the past five years. Several cities have made ordinances compelling their use in all new buildings, and there can be little doubt that such a policy will become general as soon as the utility of these goods shall become generally understood.

All the prominent **Insurance Companies** recognize the additional safety against fire secured by the use of these flue-linings, by insuring buildings thus protected at cheaper rates than they otherwise would.

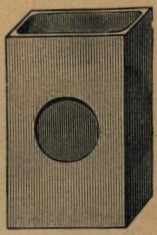
These goods are unglazed, but can be glazed when desired. They do not rust or decay, and are non-conductors of heat.



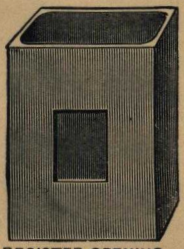
SQUARE.
8 1-2 x 8 1-2.



AS ENCLOSED IN BRICK-WORK.
2 Foot Lengths.



PIPE HOLE.



REGISTER OPENING.

ANGLE.

STRAIGHT.

Pipe hole, register openings, and angle pieces of any practicable kind on hand and made to order. But when required immediately and not at hand, they can with care be cut from the burnt ware.

PRICE LIST.

Square Flue or Chimney Linings.

IN TWO FEET LENGTHS.

OUTSIDE MEASURE.	PRICE.
4½ in. x 8½ in.	30 cts. per foot.
4½ " x 13 "	45 "
4½ " x 18 "	75 "
6 " x 12 "	50 "
8½ " x 8½ "	35 "
8½ " x 13 "	50 "
8½ " x 18 "	80 "
13 " x 13 "	75 "
13 " x 18 "	$1.00 "
18 " x 18 "	1.50 "

Openings, 50 per cent., added.
Registers, double price.

Round Flues Without Sockets.

INSIDE MEASURE.	PRICE.
6 inches.	30 cts. per foot.
8 "	45 "
9 "	55 "
10 "	65 "
12 "	85 "
15 "	$1.25 "
18 "	1.70 "
20 "	2.25 "
24 "	3.25 "

Openings, 50 per cent., added.

FIRE-CLAY STOVE PIPE.

We manufacture Fire-clay Pipe from six to twenty-four inches diameter, expressly for chimneys. The six and eight inch pipes are the sizes generally used for this purpose, and the last-named size is quite large enough for two ordinary house fires.

In fact, pipe makes a more perfect chimney than bricks, a smooth, round bore being the best possible form for a smoke-flue.

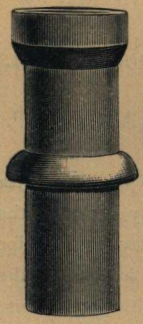
They are easily and quickly put up by any intelligent person, dispensing entirely with the services of a brick mason.

The pipes are generally set with socket end up, which gives the best opportunity to make the joints tight with mortar or cement, but outside the building, it would be better to place them socket end down, to prevent water from entering the joints.

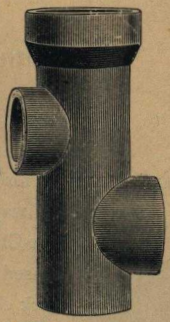
Where no fire-places are used, it is not necessary, of course, to have the pipes extend to the floor; but the chimney may be started at any point in the first or second story, by making a firm bearing for the bottom pipe at the desired point, on a strong shelf or bracket securely fastened to the wall.

Where the chimney comes through the roof, a piece of tin or sheet iron should be fitted closely around the pipe and plastered up tight with good mortar or cement, to prevent leakage.

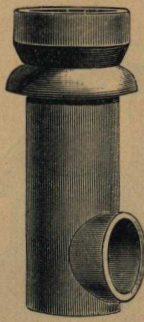
We manufacture **CHIMNEY-TOPS** and **WIND-GUARDS** to fit these pipe chimneys, as illustrated by cuts on succeeding pages. These tops give a pretty finish to the chimney, and some of them prevent rain or snow from falling in at the top.



BOTTOM.
2 ft. long.

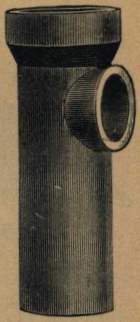


DOUBLE OPENING.
2 ft. long.



DROP BOTTOM.
3 ft. long.

PLAIN PIECE.
2 ft. long.



OPENING.
2 ft. long.

PRICE LIST

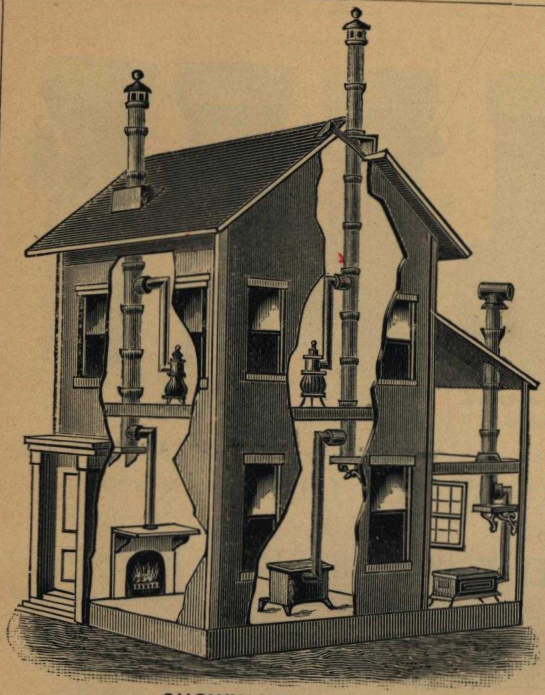
OF

CHIMNEY FLUES OR STOVE PIPE.

Caliber Round Flues inside.	Price per foot. Main Pipe, per foot.	Price per piece. Bonnets, 2 feet long.	Price. Bottoms, 2 feet long.	Price. Openings, Single, 2 feet long.	Price. Openings, Double, 2 feet long.	Price. Openings, Single, closed ends, 2 feet long.	Price. Drop Bottoms, 3 feet long.	Price. Bends or Elbows, each.
6 inch.	$ .40	$1.60	$1.20	$1.20	$1.60	$1.60	$2.40	$1.60
8 "	.60	2.40	1.80	1.80	2.40	2.40	3.60	2.40
9 "	.70	2.80	2.10	2.10	2.80	2.80	4.20	2.80
10 "	.85	3.40	2.55	2.55	3.40	3.40	5.10	3.40
12 "	1.10	4.40	3.30	3.30	4.40	4.40	6.60	4.40
15 "	1.50	6.00	4.50	4.50	6.00	6.00	9.00	6.00
18 "	1.80	7.20	5.40	5.40	7.20	7.20	10.80	7.20
20 "	~~2.20~~ 250	~~8.80~~ 10. 200	~~6.00~~ 200	~~5.60~~ 200	~~8.80~~ 10.	~~8.80~~ 10.	~~13.20~~ 15.	~~8.80~~ 10.
24 "	3.50	14.00	10.50	10.50	14.00	14.00	21.00	14.00

Additional lengths, charged in proportion, Bottoms closed, Openings or Flanges added, each to be charged one foot of pipe of the same size.

Liberal Discount to the Trade.



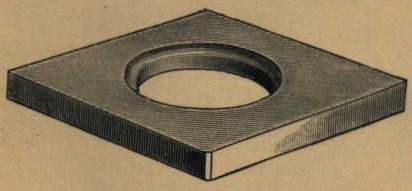
SHOWING PIPE PUT UP.

CHIMNEYS

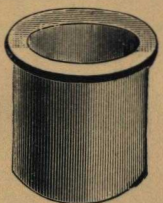
Without Brick.

SAFE AND CHEAP.

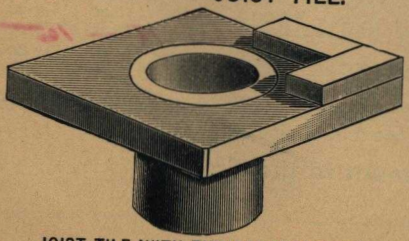
This cut illustrates the way in which the Fire-Clay Stove Pipe is used in place of the brick chimneys. These pipes having sockets on are set one upon the other, and by cementing them at the joints, they are made perfectly safe from fire, which often occurs from defective flues in brick chimneys.



JOIST TILE.



THIMBLE.



JOIST TILE WITH THIMBLE INSERTED.

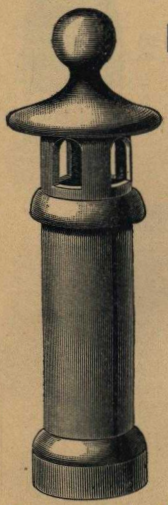
The above cut represents the Joist Tile with Thimble, which should extend one inch below the plastering. The flue or chimney can be built on the Tile, of brick and mortar to the desired height, or one of our bottom joints of flue pipe can be used in place of the Thimble, and extended with the flue pipe through the roof.

STOVE THIMBLES.

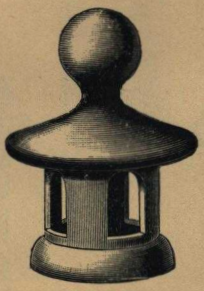
PRICE EACH.

Caliber.	Four and a half Inches Long.	Six Inches Long.	Nine Inches Long.	Twelve Inches Long.
5 inch.	$ ~~.15~~ .20	$ ~~.23~~ .25	$ ~~.32~~ .35	$ ~~.40~~ .45
6 "	~~.17~~ .25	~~.25~~ .35	~~.40~~ .45	.50
7 "	~~.20~~ .30	~~.30~~ .40	~~.45~~ .50	.60
8 "	~~.25~~ .35	~~.35~~ .45	~~.55~~ .60	.70
10 "	.35	.45	.65	.75
12 "	.45	.55	.75	1.00

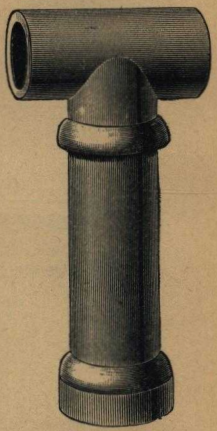
PORTLAND GLAZED CHIMNEY TOPS.



Showing Wind Guard on Section of Pipe.



Wind Guard Top.



Showing T Guard on Section of Pipe.

The above Guards are made to fit on Glazed Pipe from 4 in. to 18 in. and make a cheap and durable chimney. The pipe can be ordered in 3 foot lengths, if preferred.

PRICE LIST.

Wind Guard Top.		T Guard Top.	
5 inches, . .	$1.50	5 inches, . .	$ .90
6 " . .	1.50	6 " . .	1.10
8 " . .	2.00	8 " . .	1.75

TERRA COTTA CHIMNEY TOPS.

3 ft. high, Price, $5.00

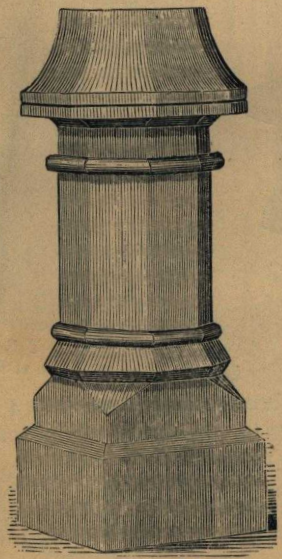
No. 27.
Base 12 x 15½.

3 ft. high, Price, $5.00

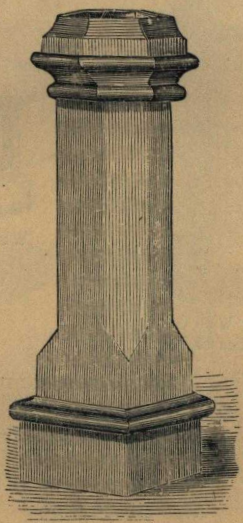
No. 26.
Base 13 in.

3 ft. high, Price, $3.75
3½ " 4.50

Nos. 23 and 24.
Base 13 in.

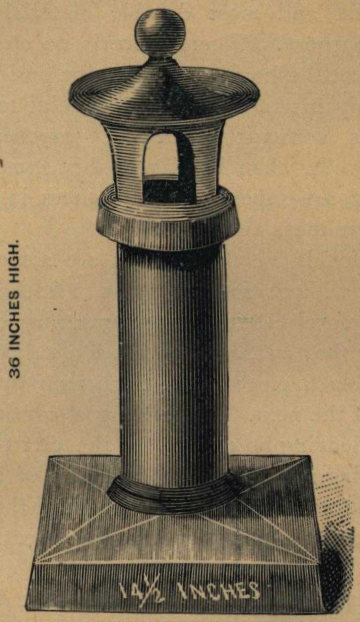


No. 80. Base 18 x 18.
48 in. high, . . $10.00.



No. 82. Base 12 x 12.
42 in. high, . . $5.00.

PORTLAND FLAG-HOUSE JACK.



14 1-2 INCHES SQUARE INSIDE.

Price, $6.00.

The above cut represents a Glazed Terra Cotta Chimney, six inches in diameter, suitable for small houses. It can be placed over the wood-work and easily made water-tight.

They have been used by Railroads for Flag-House Jacks.

Smoke-Jacks for Engine-Houses.

Warranted indestructible. Less than half the price of iron. Recommended by Railroad Engineers as the Best Smoke-Jack in the Market. Illustrated Circular sent on application.

WELL TUBING.

Within the past few years Vitrified Stone-ware Pipes have come into very general use for tubing bored wells, and they are certainly the cleanest and most durable materials ever used for that purpose. Where there is no stone to obstruct the boring, wells can be easily and cheaply made, with augurs similar to post augers, constructed for the purpose, and such wells, when lined with this stone-ware tubing, are superior to any others in point of cleanliness and durability.

SOCKET.

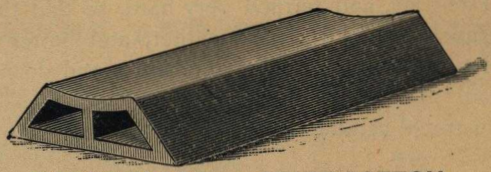
RING.

For this use the sections are sometimes made without sockets, so as to fit the hole more closely; but the regular socket joint is by far the best, as this makes a more solid joint, each piece fitting accurately into the end of the next, thus forming a continuous tube, leaving no crevice for the dirt to fall in, doing away with the necessity of cleaning the well. Vermin cannot crawl through the joints and fall in; hence, sweet, pure water is the result.

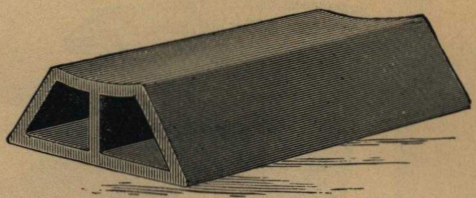
Dug wells are curbed with the larger sizes, and are far superior to a curbing of brick or stone, for the reasons given above, and especially in sandy ground, where common wells are not easily made, and when made are constantly filling up with quick-sand; but with these pipes a well can be put down with ease, even in a bank of quick-sand. This is best done by a man getting inside the pipe and as he throws out the sand, the pipes settle down by their own weight. When the first pipe gets below the surface put on another, and so continue to do until the required depth is reached.

INVERT BLOCKS,

Used for Sewers, Round and Oval.



INVERT BLOCK. SEWER BOTTOM.

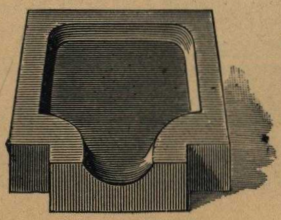


INVERT BLOCK. SEWER BOTTOM.

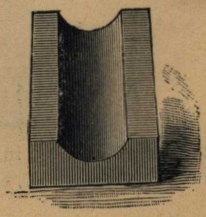
They act as a shoe for the sewer, and the balance of the sewer is built of brick to suit any size.

Channel Pipes for Open Drains, or the Bottom of Man-holes.

Price: Three-fifths the price of whole pipe. With or without socket.



DRIP STONE.



GUTTER TILE.

TERRA COTTA GARDEN VASES,

Made of Fire-Clay, and burned very hard, so that they are indestructible, not affected by the weather, and better for flowers, because they are porous, holding moisture, and do not draw the sun like iron.

New illustrated catalogue sent on application.

27 INCH TOP.

No. 361 Vase, 30 in. high, ...	$10.00
No. 71½ Pedestal, 18 in. high, ...	6.00

TERRA COTTA VASES

FOR

LAWNS AND CEMETERIES.

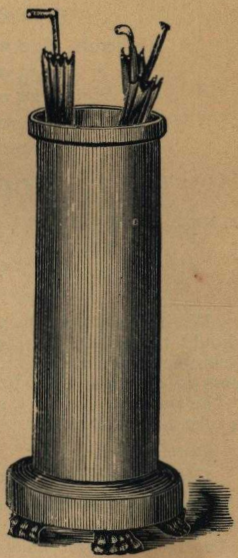
No. 362 Vase, 22 in. high, . . $7.00

Ornamented with Flowers.

No. 354 Pedestal, 13 in. high, . . 3.00

Diameter across top, 26 in.

Vase 362 suitable for Pedestals, Nos. 76, 88, 110 and 354.



UMBRELLA STANDS.

We have glazed some of these Vases which have been preferred by a great many persons.

Our illustrated catalogue of Vases will be sent on application.

RED DRAIN TILE.

For Under-Draining Wet Land, Orchards, Etc.

PRICE PER 1000 PIECES, WITHOUT COLLARS.

2	inch,	$22.50	per	1000	feet, Weight,	3,000 lbs.
3	"	35.00	"	"	"	5,000 "
4	"	55.00	"	"	"	7,000 "
5	"	80.00	"	"	"	11,000 "
6	"	110.00	"	"	"	13,000 "

COLLARS OR BANDS.

2	inch,	$15.00	per 1000 pcs.	5	inch,	$45.00	per 1000 pcs.
3	"	22.00	" "	6	"	60.00	" "
4	"	30.00	" "				

We have adopted the round tile, believing it to be the only correct form tile should take; and in this we are sustained by the precepts and practice of scientific engineers, both in this country and England, who have made the business of drainage a study. French, in his work on "Farm Drainage," says: "The simplest, cheapest, and best form of drain tile is the cylinder, or merely a tube with a round bore."

Col. George E. Waring, Jr., in his excellent work on drainage, says:

"If a rule for drainage could be adopted which would cover all the varied circumstances of different soils, it would be somewhat as follows: All lands of whatever texture or kind in which the spaces between the particles of soil are filled with water (whether from springs or rain) within less than four feet of the surface of the ground, except during and immediately after heavy rains, require draining. Of course the particles of the soil cannot be made dry, nor should they be, but although they should be moist themselves, they should be surrounded with air, not with water."

In laying Sole Tile care should be taken to have the bottom and one of the perpendicular sides of the trench as regular as possible, in order that the tile may be put into a position against them, from which it will not vary when being covered. The trench having been built with a gradual slant in the direction in which the water is to be conveyed, place the tile end to end, and after putting over the joints, grass, hay or tarred paper, cover with loose gravel.

From a mass of Testimony we beg leave to call your attention to the following.

CITY OF CAMBRIDGE, OFFICE OF THE CITY ENGINEER, CITY HALL,

CAMBRIDGE, March 21, 1888.

GEO. C. DUNNE, Esq.

Dear Sir: In reply to your desire for my opinion as to the sewer pipe manufactured by the Portland Stone Ware Co., I would say that I have used it in this city for a number of years and it has given good satisfaction. It has of late been very much improved in strength and quality. I consider it a first-class drain pipe. Very truly, etc.

WM. S. BARBOUR,
City Engineer.

OFFICE OF CITY ENGINEER, CITY HALL,
LOWELL, MASS., Dec. 30, 1887.

GEO. C. DUNNE, Esq., Agent Portland Stone Ware Co.
Boston, Mass.

Dear Sir: In answer to your letter of the 26th inst., I would say that the city of Lowell has used the Portland Company's sewer pipe for the past two years, using sizes from six inches to twenty-four inches in diameter, and it has given perfect satisfaction. Very truly yours,

GEO. BOWERS,
City Engineer.

PAWTUCKET SEWER DEPARTMENT, OFFICE, MUSIC HALL BUILDING,
PAWTUCKET, R. I., Dec. 19, 1887.

PORTLAND STONE WARE CO., GEO. C. DUNNE, Agent,
Boston, Mass.

Dear Sir: I have used, this last season, a number of carloads of pipe made by your Company and am very much pleased with it. It stands our inspection better than any of the Akron pipes, and is much stronger. It is not nearly as liable to breakage in handling as the Akron. Yours,

A. R. SWEET,
City Engineer.

METROPOLITAN CONSTRUCTION CO., GEN. ENGINEERS AND CONTRACTORS,
OFFICE, 12 PEARL STREET,
BOSTON, March 23, 1888.

TO WHOM IT MAY CONCERN:

This is to certify that during my fifteen years connection with the Sewer Department of Boston, I used about all of the different kinds of sewer pipe manufactured. The Portland Stone Ware Co., during the past two years, have been making a red-body pipe and I consider it the finest pipe in the market today and should be very much opposed to using any other.

Very respectfully,

THOS. J. YOUNG.

CITY ENGINEER'S OFFICE, CITY HALL,
CHELSEA, May 31, 1883.

GEO. C. DUNNE, Agent Portland Stone Ware Co.

Dear Sir: In answer to your letter, I would say that in Chelsea it has been the custom to obtain proposals from the Portland Stone Ware Co., and from the Akron Co. We have considered the two kinds of pipe of equal quality, and use them to the exclusion of other manufacturers.

Yours truly,

WM. E. McCLINTOCK,
City Engineer.

FITCHBURG, MASS., March 12, 1885.

GEORGE C. DUNNE, Esq.

Dear Sir: Yours of the 11th at hand. In reply, would say I have used the Portland Company's sewer pipe exclusively in our sewer construction for the last two years. For uniformity of size and quality of material I should give it the preference to the Akron pipe. Yours, etc.

THOS. C. LOVELL,
City Engineer.

L. FRED'K RICE, ARCHITECT AND CIVIL ENGINEER, 9 PEMBERTON SQ.
BOSTON, May 16, 1883.

MR. G. C. DUNNE, Boston,

Dear Sir: In my practice I have for many years used, and been cognizant of the use of, glazed earthen-ware pipe of various makers, both American and foreign. The quality of pipe furnished from these different sources has been so various and uncertain that I have now settled into the practice of avoiding the uncertainty by specifying "Portland or Akron pipe" for sewer purposes — feeling confident that either will be a good article, and that there is really no choice between them as to quality. My decision between them would in almost every case depend upon the thickness of the pipe proposed to be furnished, and the price demanded. Truly,

L. FRED'K RICE.

OFFICE ATWOOD LEAD CO.
PORTLAND, ME., May 23, 1870.

PORTLAND STONE WARE CO., Portland, Me.

Having subjected your stone-ware glazed drain-pipe to various chemical tests at our lead-works, we find that they resist not only the most powerful acids and other chemical agencies, but were utterly unaffected by any of the severe tests to which we subjected them.

WM. ATWOOD,
Pres. A. L. Co.

CITY OF PORTLAND, CITY ENGINEER'S OFFICE,
March 25, 1884.

I hereby certify that for the past ten years the City of Portland has laid large quantities of vitrified sewer pipe of the Portland Stone Ware Company's manufacture, to the entire satisfaction of the several committees on sewers and of the superintendents of sewers. Within the last six years, considerable improvement has been made in the quality of the pipe, and it now compares favorably, in respect of combined excellence and low cost, with any pipe which has come under my notice.

WM. A. GOODWIN,
City Eng'r and Sup't of Sewers.

CITY OF PORTLAND, CITY ENGINEER'S OFFICE,
December 31, 1887.

MESSRS. WINSLOW & CO., PORTLAND STONE WARE CO.

Gentlemen: In accordance with your request, I am glad of the opportunity to give you my opinion of the vitrified pipe of your manufacture. To the excellence of your smaller pipe up to 18-inch diameter I have already frequently testified. As soon as you began the manufacture of 20 and 24 inch pipe this year, I recommended its use instead of brick, which had been estimated for, and shall continue to do so. We have laid 1,342 feet of the 24-inch this year, and 292 feet of 20-inch, some of it at a depth of 13½ feet, to my entire satisfaction.

I shall never again recommend a brick sewer of 20 or 24 inch so long as your pipe can be had at your present price.

Yours very respectfully,
WM. A. GOODWIN,
City Engineer.

The figures given below is the average pressure upon each square inch of the pipe.

OFFICE OF SUPERINTENDENT OF SEWERS,
CITY HALL, BOSTON, Sept. 1, 1869.

TEST OF PORTLAND DRAIN PIPE.

12 inch,	. . . . .	78 lbs.	per	square inch.
10 "	. . . . .	120 "	"	"
8 "	. . . . .	103 "	"	"
6 "	. . . . .	130 "	"	"
4 "	. . . . .	255 "	"	"

(Signed) WM. H. BRADLEY,
Sup't of Sewers.

TEST OF 12-INCH SEWER PIPE IN BOSTON, 1878, BY WM. H. BRADLEY, ESQ. SUPERINTENDENT OF SEWERS.

Owners and Kinds of Pipe.	Size.	Crushing weight lbs., foot.	Breaking weight lbs., 2½ ft. Span.
PORTLAND STONE WARE CO.	**12 in.**	**2652**	**4913**
OTIS & GORSLIN, ...	12 "	2807	4299
HILL SEWER PIPE CO.	12 "	2286	4299
D. W. LEWIS, Agent, ...	12 "	2107	4606
T. W. CARTER, Agent, ...	12 "	2140	4299
GEO. W. RADER, ...	12 "	2052	4299
D. L. KING, Sec. Akron Co. . . .	12 "	1891	3992

---

53 DEVONSHIRE STREET, BOSTON, May 7, 1883.

E. B. WINSLOW, Sup't, Portland, Me.

Dear Sir: I have received your note requesting my experience with Portland Stone Co.'s pipe, and my opinion of it generally.

The Portland Co.'s pipe, has been perfected so much in recent years that I have received it on an equality with other brands of vitrified pipe, and on two occasions, when the price was lower, have awarded the city contract to you. I have been satisfied with the way in which you filled your contracts, and in the action of the pipe when in use. In the largest sizes I think Portland has the advantage of extra thickness and weight. Yours truly,

WM. H. BRADLEY.

DRAINAGE CONSTRUCTION CO., 44 STATE ST., BOSTON.

Chief Eng. & Gen. Man., JOHN BOGART, 35 Broadway, N. Y.
Consulting Eng's, GEO. E. WARING, Jr., Newport, R. I.
EARNEST PONTZEN, 4 Rue de Castellane, Paris.

DIRECTORS:
R. B. POTTER, Pres. H. L. HIGGINSON, Treas. GEO. E. WARING, Jr.

KEENE, N. H., June 27, 1883.

GEORGE C. DUNNE, Esq.

Dear Sir: Both cars shipped June 22d and 23d here to-day. Thanks for your promptness. The carload inspected has turned out wonderfully well, as you will see by the inspection report which I ordered sent you. The second car will be inspected to-morrow.

The results fully uphold your circular in regard to the percentage of rejections of the different makes of pipe. We have used Akron, Rochester, Boynton, Scotch and English pipe here, beside the Portland. The inspection has been very rigid, as you know, and the Portland pipe has passed it decidedly the best of any. We are ordering now wholly of you. I will see about the freights to-morrow and write you.

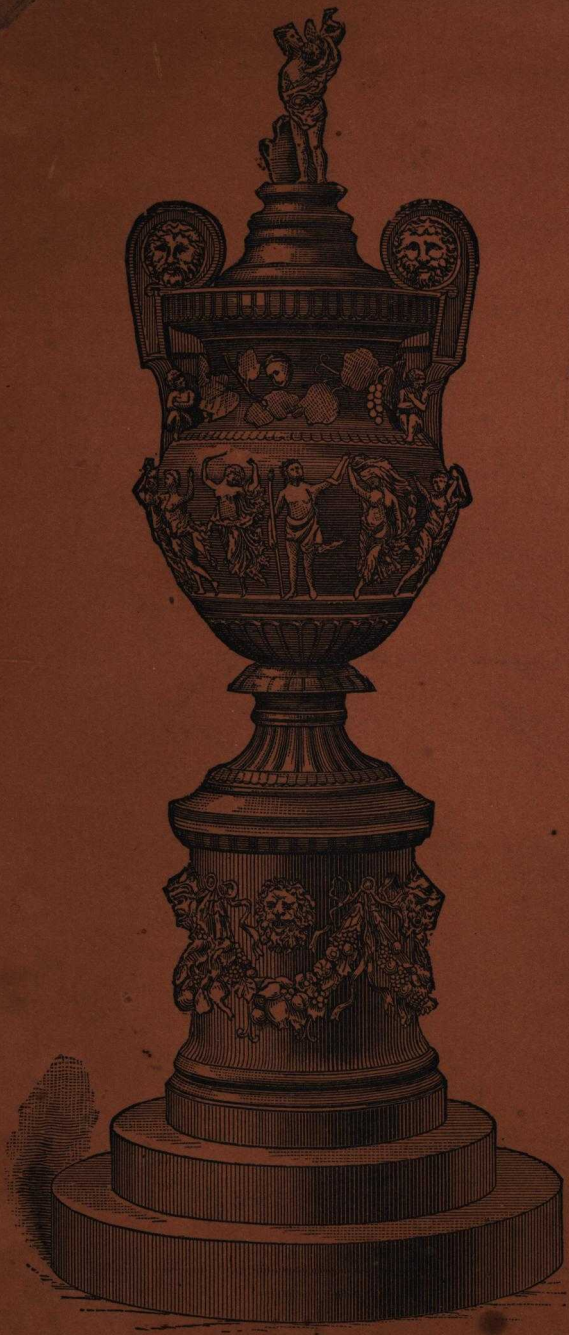
I have written Col. Waring to-day about the superiority of your pipe.

Truly yours,

J. W. SEWALL,
Engineer in charge D. C. Co.

TESTS OF SEWER PIPE IN PROVIDENCE, BY J. HERBERT SHEDD, ESQ. CHIEF ENGINEER, IN 1875, WHICH WAS OPEN TO ALL AMERICAN MANUFACTURERS.

Kinds of Pipe.	Size.	Average crushing weight per foot.
PORTLAND,	**12 in.**	**1766**
AKRON, (Ohio),	12 "	1723
SALAMANDER,	12 "	1464
WALDO BROS.	12 "	1456
PORTLAND,	**15 "**	**1765**
SALAMANDER,	15 "	1397
WALDO BROS.	15 "	1385
AKRON, (Ohio),	15 "	1261
PORTLAND,	**18 "**	**1942**
WALDO BROS.	18 "	1599
SALAMANDER,	18 "	1464



WINSLOW VASE. Terra Cotta. 10 ft. high.

Illustrated Catalogues sent on Application.

Digitized by:

INTERNATIONAL

ASSOCIATION
FOR
PRESERVATION TECHNOLOGY,
INTERNATIONAL

www.apti.org

**BUILDING
TECHNOLOGY
HERITAGE
LIBRARY**

https://archive.org/details/buildingtechnologyheritagelibrary

From the collection of:

**NATIONAL
BUILDING
ARTS
CENTER**

http://web.nationalbuildingarts.org

WINSLOW VASE. Terra Cotta. 10 ft. high.

Illustrated Catalogues sent on Application.